AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-11 (canceled).

12. (new): A diffractive optical element of the binary type, comprising: one or more optical zones, one zone comprising binary microstructures with a variable fill factor etched on the surface of an optical material having a given index, forming an artificial material with effective index variation whose effective index varies between a minimum value and a maximum value of said element, wherein one optical zone of said element forms a composite artificial material comprising, in a first portion, microstructures according to a first geometry for which the effective index decreases with the fill factor and, in a second portion, microstructures according to a second geometry for which the effective index increases with the fill factor, and the fill factors of said microstructures according to the first and second geometries are defined as a function of the dispersion of said material with the wavelength in the first portion and the second portion, so as to obtain an element blazed over a wide spectral band.

13. (new): The optical element as claimed in claim 12, wherein the minimum and maximum effective indices of said composite material are determined from curves of variation in the effective index with the fill factor of the microstructures, which are obtained at the design wavelength and at a wavelength λ_∞ which is large compared with the design wavelength λ_0, so as to obtain an optimum value strictly greater than 0 for a characterization parameter α of said optical zone, said parameter being given by the equation:

$$\alpha = \frac{(\delta n_{min} - \delta n_{max})}{\Delta n(\lambda_0)}$$, where $\Delta n(\lambda_0) = n_{max}(\lambda_0) - n_{min}(\lambda_0)$, $\delta n_{min} = n_{min}(\lambda_0) - n_{min}(\lambda_\infty)$ and $\delta n_{max} = n_{max}(\lambda_0) - n_{max}(\lambda_\infty)$, where n_{max} and n_{min} are respectively the values

where n_{max} and n_{min} are respectively the values of the maximum and minimum effective index at the wavelength in question.

14. (new): The optical element as claimed in claim 13, comprising one or more zones formed only by microstructures according to either the first or second geometry.

15. (new): The optical element as claimed in claim 13, wherein the microstructures of the first geometry type are of the hole type, and the microstructures of the second geometry type are of the pillar type.

16. (new): The optical element as claimed in claim 13, wherein the optical material has a high refractive index (n).

17. (new): The optical element as claimed in claim 13, corresponding to a binary synthesis of an échelette grating having a determined period Λ, wherein each optical zone of the microstructure corresponds to an echelon of the échelette grating.

18. (new): The optical element as claimed in claim 13, wherein each optical zone of said element corresponds to a zone of a Fresnel lens.

19. (new): The optical element as claimed in the preceding claim, wherein the optical zone is defined to have $0.3 \leq \alpha \leq 0.5$.

20. (new): An optical system for use in imaging with a wide spectral band or in a dual spectral band, comprising a diffractive optical element as claimed in claim 13.

21. (new): The optical system as claimed in claim 19, for infrared imaging.

22. (new): The optical system as claimed in claim 19, for imaging in the visible range.